DRAFT - ENHANCEMENT AREA ASSESSMENTS & STRATEGIES

Ocean Resources: Assessment

Section 309 Programmatic Objectives

I. Develop and enhance regulatory, planning, and intra-governmental coordination mechanisms to provide meaningful state participation in ocean and Great Lakes resource management and decision-making processes.

II. Where necessary and appropriate, develop a comprehensive ocean and Great Lakes resource management plan that provides for the balanced use and development of ocean and Great Lakes resources, coordination of existing authorities, and minimization of use conflicts. These plans should consider, where appropriate, the effects of activities and uses on threatened and endangered species and their critical habitats. The designation of specific marine protected areas should be considered.

Resource Characterization

1. In the table below characterize ocean and/or Great Lakes resources and uses of state concern, and specify existing and future threats or use conflicts.

2.

Resource or Use	***Current Threat or Conflict***	***Degree of Threat (High/Medium/Low)***	**Anticipated Threat or Conflict in the Future**
Fisheries	Trawl survey funding uncertain; decline of Black Sea Bass, Menhaden, American Shad, Blue Crab and Horseshoe Crab	Medium	Uncertainty in loss of funding for Juvenile Trawl Survey and CHESMAP; rise in tidal/coastal development
Oil & Gas	Implications from State-ordered study on offshore natural gas exploration and leasing and associated resource impacts	Low	Potential withdrawal of moratorium on oil and gas exploration; increase in demand for domestic oil
Sand	Lack of clear alternatives to offshore borrowing from Sandbridge Shoal; mining and loss of benthic habitats	Medium	Increasing demand for beach sand (renourishment)

Describe any changes in the resources or relative threat to the resources since the last assessment.

Fisheries

Trawl Survey: The Virginia Institute of Marine Science (VIMS) continues to manage the Juvenile Trawl Survey in the Chesapeake Bay to assess population shifts in fin- and shell-fish stock, though the Institute believes that an expanded monitoring system is needed to provide managers and policy analysts with complete data sets for multi-species and ecosystem management strategies. Waterfront residential and commercial development in the Bay may be reducing habitat for populations under survey by VIMS. Funding sources for the Juvenile Trawl Survey still remain a concern from the last assessment in 2000. Recreational fishing license

fees from the Virginia Recreational Fishing Department supported the survey in 2002 and 2003. Since 2003, the NOAA Chesapeake Bay Office has funded the survey. For 2005, VIMS has requested funding from NOAA but there is no assurance the survey will be funded. This proposal is being submitted to the Virginia Fisheries Advisory Board to request emergency funding to continue this critically important finfish and blue crab monitoring program for an additional year.

In addition to the Juvenile Survey, VIMS also conducts a survey of adult fish populations in the Chesapeake Bay called CHESMAP. Initiated in 2002 from an overwhelming response to administrative call for adult fisheries data, CHESMAP conducts approximately 80 trawl tows annually throughout the entire mainstem of the Bay to estimate the population age structure and diet composition of adult fish populations to create multi-species assessment models. CHESMAP is one of the first attempts nationally to create an ecosystem-based fisheries management assessment to support sustainable fisheries management. Data from CHESMAP will provide important information on predator-prey relationships and population estimates in the Chesapeake Bay as they relate to environmental factors such as salinity, temperature, habitat composition, etc. The National Oceanographic and Atmospheric Administration (NOAA) currently provides the majority of funding for CHESMAP, though support also comes from the sale of recreational fishing equipment through the Virginia Marine Resources Commission. Since NOAA funding is intended, for both surveys mentioned, to be mainly activating, state program funding is sought for long-term continuation of the surveys.

Menhaden: Menhaden are extremely important as a forage fish for top predator fish such as striped bass, bluefish and weakfish. They also play an important role as a filter feeder, helping to control the growing sedimentation of the Bay, which is believed to affect SAV growth. According to the Atlantic States Marine Fisheries Commission (ASMFC), "the issue of possible local depletion of menhaden in the Bay is at the top of the list for accelerated research and management actions to address this specific concern." Consequently, a decision in August 2005 by the ASMFC imposed an annual 105,800 metric ton limit on menhaden harvesting from Chesapeake Bay for five years beginning in 2006. This cap is based on the average industry harvest for the previous five years. The decision also calls for a research program to assess the status of menhaden in the Bay. The program's goal is to determine menhaden populations in the bay, study the movement of menhaden between the bay and estuaries, and estimate the level of predation on menhaden. For the state to implement the cap on menhaden, the General Assembly must enact the legislation. If the General Assembly does not act, the U.S. Secretary of Commerce has the option to decide whether Virginia is being non-compliant or if ASMFC has exceeded its mandate.

Blue Crabs: Harvest counts in 2002 showed a small improvement in the population of blue crab, though still below critical levels. A Blue Crab Migratory Corridor Sanctuary was established in 2000 through a recommendation of the Bi-State Blue Crab Advisory Committee, in collaboration between Virginia and Maryland fisheries departments and the Chesapeake Bay Commission. The Advisory Committee closed in 2003 for lack of funding from the state of Virginia, though the sanctuary continues to protect female blue crabs migrating to spawning grounds in the lower Chesapeake Bay as crabs beyond the boundaries typically show a four to seven fold increase in mortality rates. Furthermore, a blue crab reintroduction program through VIMS is attempting to establish a sustainable population in the Chesapeake Bay area from hatchery-grown crabs.

American Shad: A total moratorium on the harvesting of Shad in the Chesapeake Bay was re-adopted and in effect through 2004 (VMRC Reg. 4 VAC 20-530-10 ET SEQ.). The intent of the moratorium is to reduce fishing mortality in order to rebuild the Virginia stocks of American Shad and to comply with the requirements for ocean-intercept commercial fisheries, as specified by the Interstate Fishery Management Plan for Shad and River Herring.

Black Sea Bass: This is primarily a trap fishery along the seaside of Virginia's Eastern Shore and Virginia Beach coastline down to North Carolina. Stocks of Black Sea Bass are believed to be in decline. Changes in trap design are mandated by Virginia Marine Resources Council (VMRC) to reduce taking of undersized fish

and allow for greater breeding of this species. On April 5, 2005, VMRC Regulation 4 VAC 20-950-10 ET SEQ established an annual size limits, gear restrictions, and quotas on the harvest of Black Sea Bass.

Sea Scallops: Research on impacts of gear modifications and a rotational closure management strategy have significantly improved the outlook for the sea scallop fishery in the U.S. – one of the most lucrative sectors of commercial fishing in both the nation and the Commonwealth of Virginia.

Sea Turtles: Gear changes to scallop dredge vessels are under research by the Virginia Institute for Marine Science Sea Turtle Stranding Program to reduce fatalities of sea turtles. Information cards explaining resuscitation techniques and modified gear rigging are aboard some 150 commercial vessels operating along the Atlantic Coast.

Whelk and Horseshoe Crab: As the bait of choice for channeled whelks, horseshoe crab stocks are believed to be in decline from the emerging channeled whelk fishery in Virginia. Efforts are underway to evaluate alternative bait for the whelk and reduce general demand for horseshoe crabs.

Oysters: Aquatic oyster reefs are being reintroduced as part of the Chesapeake 2000 agreement committing to, "by 2010, achieve, at a minimum, a tenfold increase in native oysters in the Chesapeake Bay." The commitment is joined by cooperation among multiple agencies including state, federal, and non-profit and academic entities. Also, VIMS seeks to address this concern with research on native oyster growth in the Great Wicomico River. A central piece of the VIMS research efforts is development of selectively bred, disease-tolerant strains of local oysters for "seeding" of newly constructed reefs, an effort funded in large part by competitive grant funds from the National Oceanic and Atmospheric Administrations Oyster Disease Research Program

Research focused on augmenting oyster fishery production in Virginia and Maryland has also shown that an Asian hatchery variety, *C. ariakensis*, is faster growing and better at tolerating diseases such as MSX and Dermo, though there is concern on introducing non-native species to Bay ecosystems. For more information on *C. ariakensis*, please see the "Aquaculture" section.

Submerged Aquatic Vegetation (SAV): Numerous federal, state and local programs have worked to reintroduce, restore, and protect SAV throughout the Chesapeake Bay since its record decline in the 1960s and 70s. A VIMS survey in 2003 found a 30% decline in SAV coverage from the previous year, though this decline was largely attributed to Hurricane Isabel that same year, which altered the salinity and turbidity of the Bay enough to dramatically reduce SAV populations. A VIMS survey in 2004 showed that SAV increased in two (Upper and Middle) and decreased in one (Lower) geographic zones delineated for Chesapeake Bay. Increases in the upper zone were primarily due to large increases in beds near the Susquehanna Flats due to high runoff keeping salinity at optimal levels for growth of SAV in this region; however, this same high runoff may have contributed to decreases in the lower bay due to increased turbidity levels limiting light.

Often changes in SAV population cannot easily be attributed to single causes or events due to the complexity of the Bay environment. However, several human-related effects are of concern for the health of SAV including watershed specific storm water runoff leading to decreased salinity in the Bay and clam dredging as destructive to SAV growth. As of this report, prohibition of clam dredging in the Chincoteague Bay Submerged Aquatic Vegetation Sanctuary is having positive effects on SAV habitat. Continuing their goal from the Section 309 2000 Assessment, VIMS is working to achieve 185,000 acres of SAV, bay-wide, by the year 2010 with annual reporting and a reevaluation of progress in 2008.

Oil and Gas

A 2002 reassessment by the Mineral Management Service (MMS) in the Department of Interior recommended an extension on the moratorium for oil and gas exploration on the entire Outer Continental Shelf through June 2012. However, the 2005 Virginia General Assembly has ordered a study of natural gas exploration and leasing

on the extent of the resource, federal and state environmental permitting and review (including Coastal Zone Management Act consistency review), and potential impacts on tourism and coastal and natural resources. The study is to be completed by January 2006 and is expected to enhance the state's ability to address the siting of offshore energy facilities and anticipate their impacts.

The 2005 Energy Policy Act will encourage increased domestic production of oil and natural gas, grant the MMS new authority for federal offshore alternate energy uses, and require a comprehensive inventory of oil and gas resources on the Outer Continental Shelf using existing data and inventory sources. Ocean resources are not currently impacted by offshore natural gas drilling as the moratorium remains in effect, though with recent activity pushing for exploration impacts and feasibility of drilling, the continuation of the moratorium is in question. (For more information on Oil and Gas issues, see the "Energy and Government Facility Siting" section.)

Sand

Virginia Department of Mines, Minerals and Energy (DMME) manages beach renourishment projects. Advisory support for renourishment projects has changed from the Virginia Institute of Marine Science to the Division of Mineral Resources within DMME, though there are no anticipated future changes in project management. Sandbridge Shoal continues to supply beach renourishment material for the town of Virginia Beach and adjacent military installation at Dam Neck. However, Sandbridge Shoal is only expected to supply a limited amount of additional material before alternative sites must be located. To date, no comprehensive analysis for alternative sources of offshore sand for Virginia Beach has been conducted. However, there is some low-level funding from the Minerals Management Service for renourishment and alternative exploration projects. Other sources of sand may be found in the Bay area, as exemplified by the cities of Hampton and Norfolk which have beach nourishment programs using sources of sand in the Bay other than Sandbridge. The City of Hampton has been using sand from Horseshoe Shoal for their re-nourishment programs, while sand for Norfolk projects have generally come from dredging within the Bay. Smaller re-nourishment projects have also recently occurred in Charles City and Newport News.

Funding for monitoring these re-nourishment efforts are currently inadequate to assess the resource impacts from all dredging and renourishment projects on the Virginia coastline. For example, it is still unclear at this time if offshore sand resources are negatively affected from sand mining activities. Comprehensive monitoring is recommended to assess potential for sand bar effects and swings in the current flow.

Management Characterization

1. Identify significant state ocean and/or Great Lakes management programs and initiatives developed since the last assessment:

Program	Program Status	Funding Source (309 or Other)
Statewide comprehensive ocean management statute	No	
Statewide comprehensive ocean management plan	No	
Single purpose statutes related to ocean resources	Yes	American Shad Moratorium extension
Statewide ocean resources planning/working groups	No	
Regional ocean resources planning efforts	Yes	Fisheries Ecosystem Plan; Virginia Seaside Heritage

		Program
Ocean resources mapping or information system	Yes	Blue Green Infrastructure Mapping Initiative
Dredged material management planning	No	
Habitat research, assessment, monitoring	Yes	Renewed SAV research; Great Wicomico Study
Public education and outreach efforts	Yes	Eco-tour guide certification class

2. For changes identified above, briefly summarize the changes and their effects

Single purpose statutes related to ocean resources

American Shad Moratorium – Virginia Statute 4 VAC 20-530-10 et seq. was amended and re-adopted on January 1, 2003 to reduce fishing mortality in order to rebuild the Virginia stocks of American Shad and to comply with the requirements for ocean intercept commercial fisheries, as specified by the Interstate Fishery Management Plan for Shad and River Herring.

Regional ocean resources planning efforts

Virginia Seaside Heritage Program (VSHP) – Initiated and funded by the Virginia Coastal Program in 2002, the VSHP is a public-private venture to address management of the aquatic resources of the barrier islands, bays, and salt marshes along Virginia's Eastern Shore. Program partners administer funding for restoration and monitoring projects aimed at gaining knowledge of ocean resources and improving coastal habitat health.

Fisheries Ecosystem Plan (FEP) - A multi-stakeholder assessment and recommendation plan for improving Chesapeake Bay fisheries management. The FEP describes the structure and function of the Chesapeake Bay ecosystem, including key habitats and species interactions. The FEP seeks to serve as an umbrella document to support ecosystem-based approaches in individual Fishery Management Plans. It will include recommended actions to implement ecosystem-based approaches to fisheries management for Bay-resident and coastal species and it will recommend specific research to enhance knowledge of the ecosystem and its fisheries to support long-term management objectives. Working groups leading up to the formation of the FEP were organized in large part from recommendations from the 2000 Section 309 Coastal Needs Assessment.

Ocean resources mapping or information system

Blue Green Infrastructure Mapping Initiative (BGIMI) – Supported by previous Section 309 funding, this mapping initiative seeks to create productive communications among agencies and between levels of government to better accomplish the integration of local land use decisions with state water use decisions. The intent of this project is to develop data layers that meet individual agency needs for coastal resource management and also support the Coastal Program's efforts to create a web accessible mapping system for coastal resource data.

Habitat research, assessment, monitoring

Submerged Aquatic Vegetation (SAV) Habitat Restoration – Undertaken through the Virginia Seaside Heritage Program, SAV restoration is important for water quality and fin- and shell-fish habitat. The Heritage Program provides one of several restoration projects, underway in the Chesapeake Bay and seaside areas. SAV restoration is a multiyear program supported in concert from NOAA, the Army Corp., and the Keith Campbell Foundation and focuses mainly on eelgrass, an important habitat for bay scallops and a threatened resource in the Chesapeake Bay. Initial efforts to reintroduce plots of eelgrass have proven successful as the growth and habitat characteristics are continuing to be monitored. Continual monitoring of SAV restored habitat also shows positive results from areas off-limits to commercial and recreational clam dredging.

Public education and outreach efforts

Eco-tour Guide Certification Class – Created under Virginia Coastal Program's Seaside Heritage Program in 2002, state certification of eco-tour kayak and boating operators includes barrier island natural history and geology and information on approaching marine wildlife, endangered and keystone species of the Eastern Shore, and human impact, both past and present. Successful participants may display eco-tour decals indicating they are safe and knowledge tour operators in the coastal environment.

Conclusion

1. **Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.**

Extensive monitoring and habitat restoration has occurred since the previous assessment in 2000, due to funding from the Virginia Coastal Program's Seaside Heritage Program. There is still an expressed need for regional comprehensive fisheries management plans for both bay and coastal fisheries that address multiple species across variable habitat types. The Fisheries Ecosystem Plan promises to be an important step toward long-term management efforts involving both public and private stakeholders and emphasizing ecosystem-based approaches in individual Fisheries Management Plans. In addition, while NOAA has ecosystem and multi-species modeling for Chesapeake Bay fish, there is still a need for extending these modeling efforts to coastal fish and for promoting regional participation.

As pressure increases to find new energy sources in Virginia, the issue of offshore exploration for natural gas and oil may become a more prominent issue and threat to Virginia's coastal resources. (See the "Energy" section for more details on potential priorities and gaps.)

It is worth noting that new and emerging technologies may render renewable energy sources such as ocean waves and tidal currents an important resource for energy generation.

Finally, as beach renourishment efforts continue, there will be a need for additional sources of sand (other than Sandbridge Shoal) making it important to increase monitoring activities in these areas to assess the impacts of continuous dredging and renourishment activities.

2. What priority was this area previously and what priority is it now for developing a 309 strategy and designating 309 funding and why?

1997 Assessment		Last Assessment (2000)		This Assessment (2005)	
High	___	High	___	High	___
Medium	___	**Medium**	_✓_	**Medium**	_✓_
Low	_✓_	Low	___	Low	___

This ranking was based on the Coastal Policy Team's recognition that fisheries ecosystem management plans are a valuable tool that need to be developed for all bay and coastal fisheries. However, no strategies have been developed at this time.